How Did We Get Here?

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How Did We Get Here?

Psychological Factors and Aviation Mishaps

How Did We Get Here?

Brief Review

Technical Terms

Stress

A-B-C's

Pilot Judgment (ADM/CRM)

Brief Overview

WHO are we?

Brief Overview

Human Factors Detectives

Experts in Human Behavior

"Listen. . . . You've got to relax. . . . The more you think about changing colors, the less chance you'll succeed. . . . Shall we try the green background again?"

Brief Overview

Psychology - The science of human behavior.

Clinical Psychology - The application of principles of human behavior to clinical problems.

Aerospace Clinical Psychology - The application of principles of human behavior to mishap prevention and performance enhancement in the cockpit

Brief Overview

"... the study of human behavior in the design and operation of aviation systems. As such, it is a multidisciplinary field depending upon contributions from four academic disciplines: . . ."

Brief Overview

"... Engineering, Physiology, Education, and Psychology."

Richard S. Jensen, 1989

"... Integrationist"

Brief Overview

Aerospace Psychology is not solely a view from a Clinical “Mentally Ill” perspective !

Brief Overview

Aerospace Psychology provides a simple *ASSESSMENT* model:

* **Functional analysis**

* **Flexible**

Brief Overview

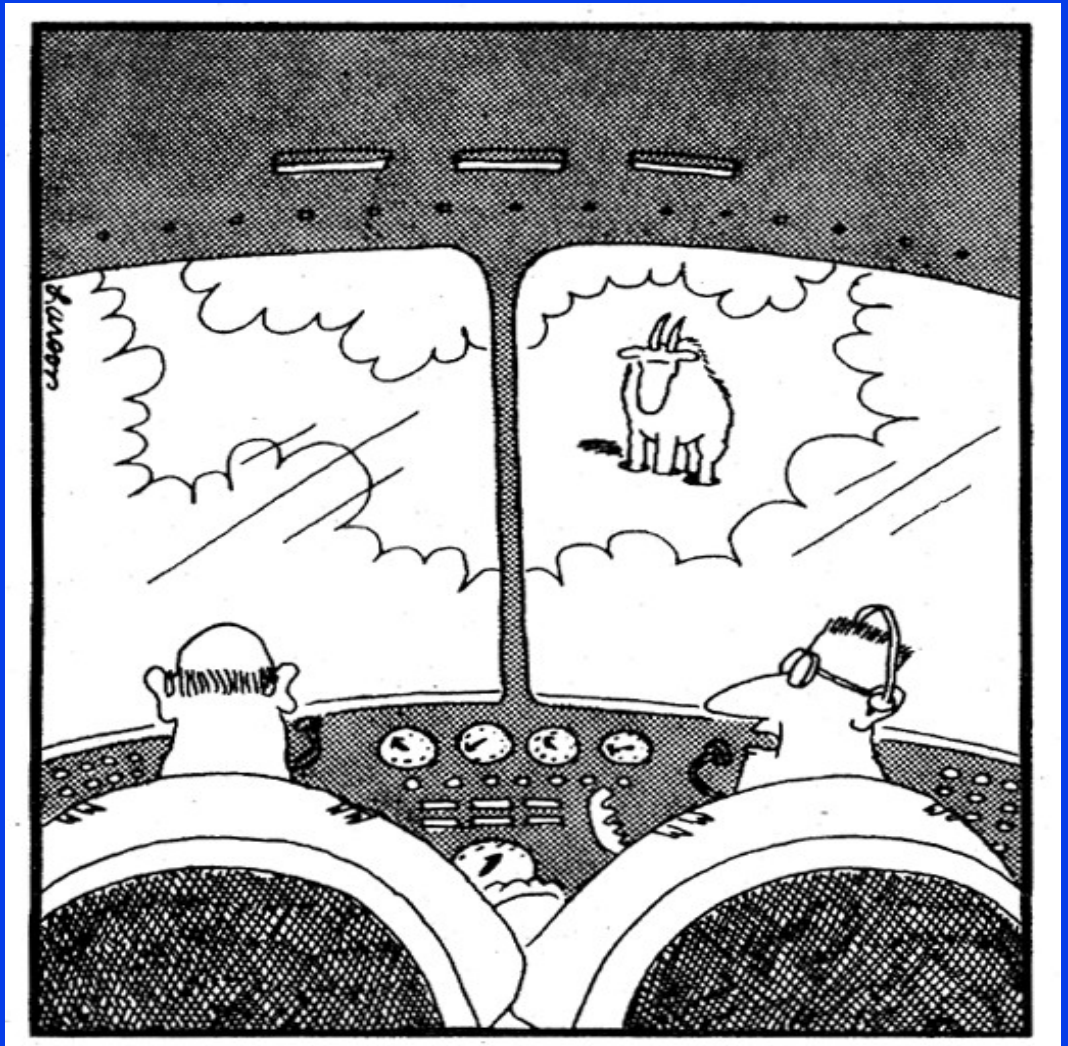
This assessment model should not be applied only to the significant bits and pieces of the mishap.

It should also be applied to the process !

- **Nothing worse than a group of individuals**
- **Team work**
- **Avoid “group think”**
- **Be open to exploring other possibilities**
- **Avoid taking things for granted**

Technical Terms

Loss of Situational Awareness



"Say . . . what's a mountain goat doing way up here in a cloud bank?"

Technical Terms

Loss of Situational Awareness

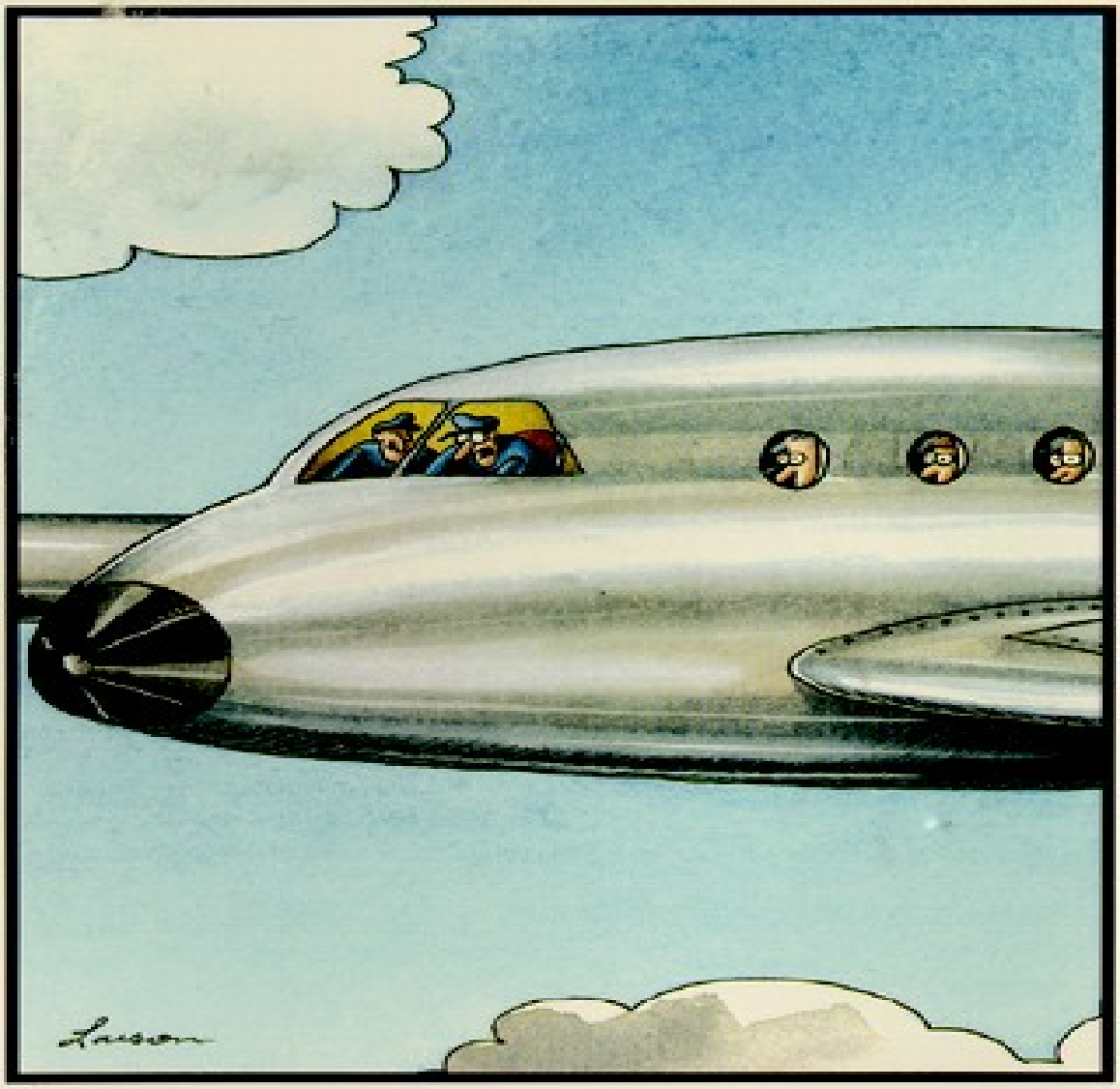
Keeping track of the prioritized significant events and conditions in one's environment.

Confusion may affect the sequence or priority of tasks to be performed

"Getting behind the power curve."

Technical Terms

Channelized Attention



"The fuel light's on, Frank! We're all going to die! ... We're all going to die! ... Wait, wait. ... Oh, my mistake—that's the intercom light."

SSSSSSSSSSSSSS
Haroon

Technical Terms

Loss of Situational Awareness

Channelized Attention

The focusing of conscious attention on a limited number of environmental cues and forgetting other, equally important cues.

Fixation

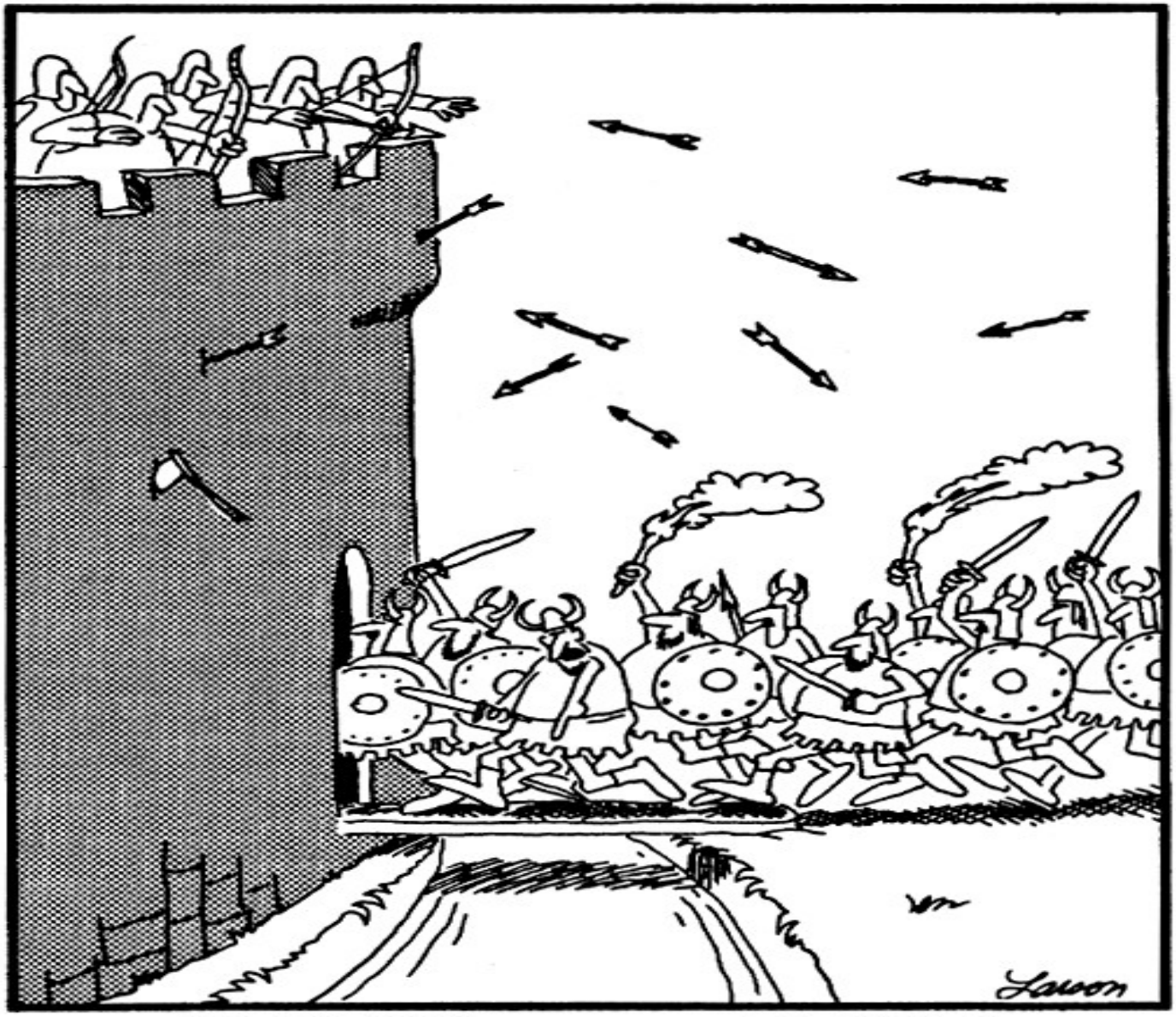
Technical Terms

Loss of Situational Awareness

Channelized Attention

Distraction

The interruption and redirection of the focus of attention by an environmental cue or process.



"Oo! Goldfish, everyone! Goldfish!"

Technical Terms

Loss of Situational Awareness

Channelized Attention

Distraction

***External Distraction* -** Interruption of attention by a nontask-related environmental cue

***Internal Distraction* -** Interruption of attention by a nontask-related mental process or emotion

Technical Terms

COMPARTMENTALIZATION

- the compartments get smaller when:

- unresolved events remain in the compartment

- other issues seep in from other compartments

- The ability to *compartmentalize* may not always be possible

Technical Terms

Bottom Line:

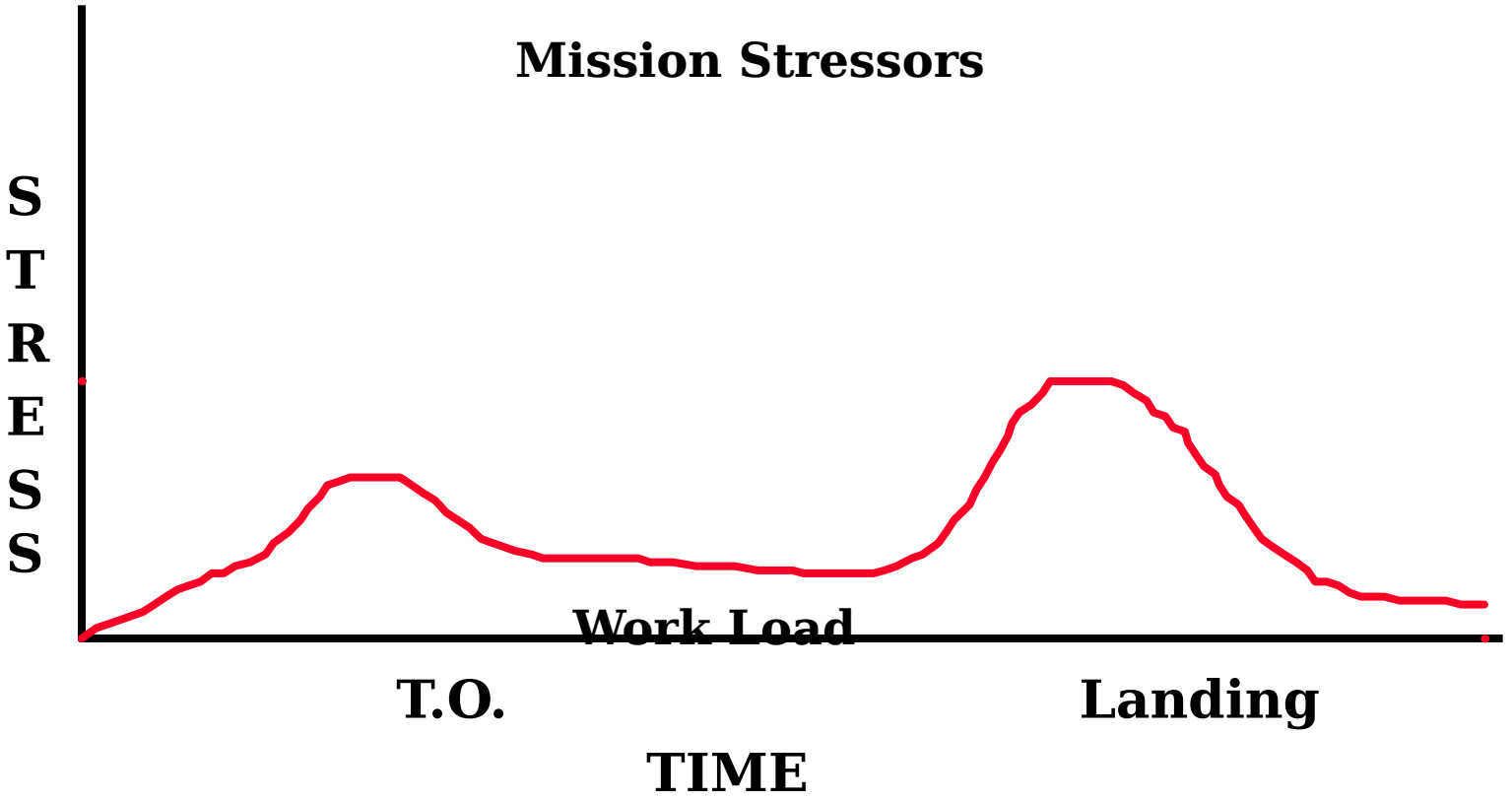
- Mishaps rarely are instantaneous events

- Chain of Events

- there are usually antecedents leading up to the event

- These antecedents rarely are attributable to “Mental Illness”, but more a series of usual events.

Stress



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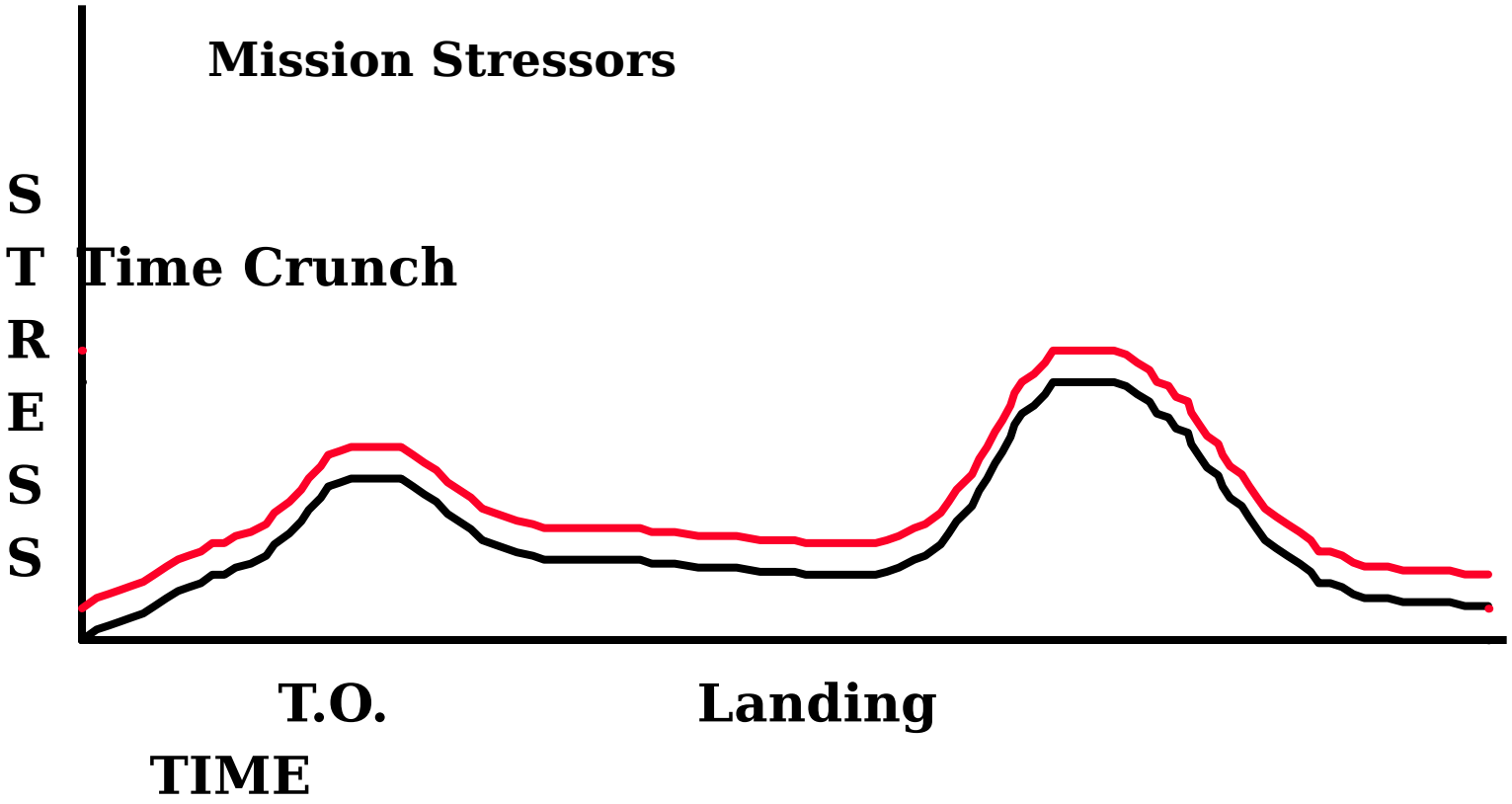

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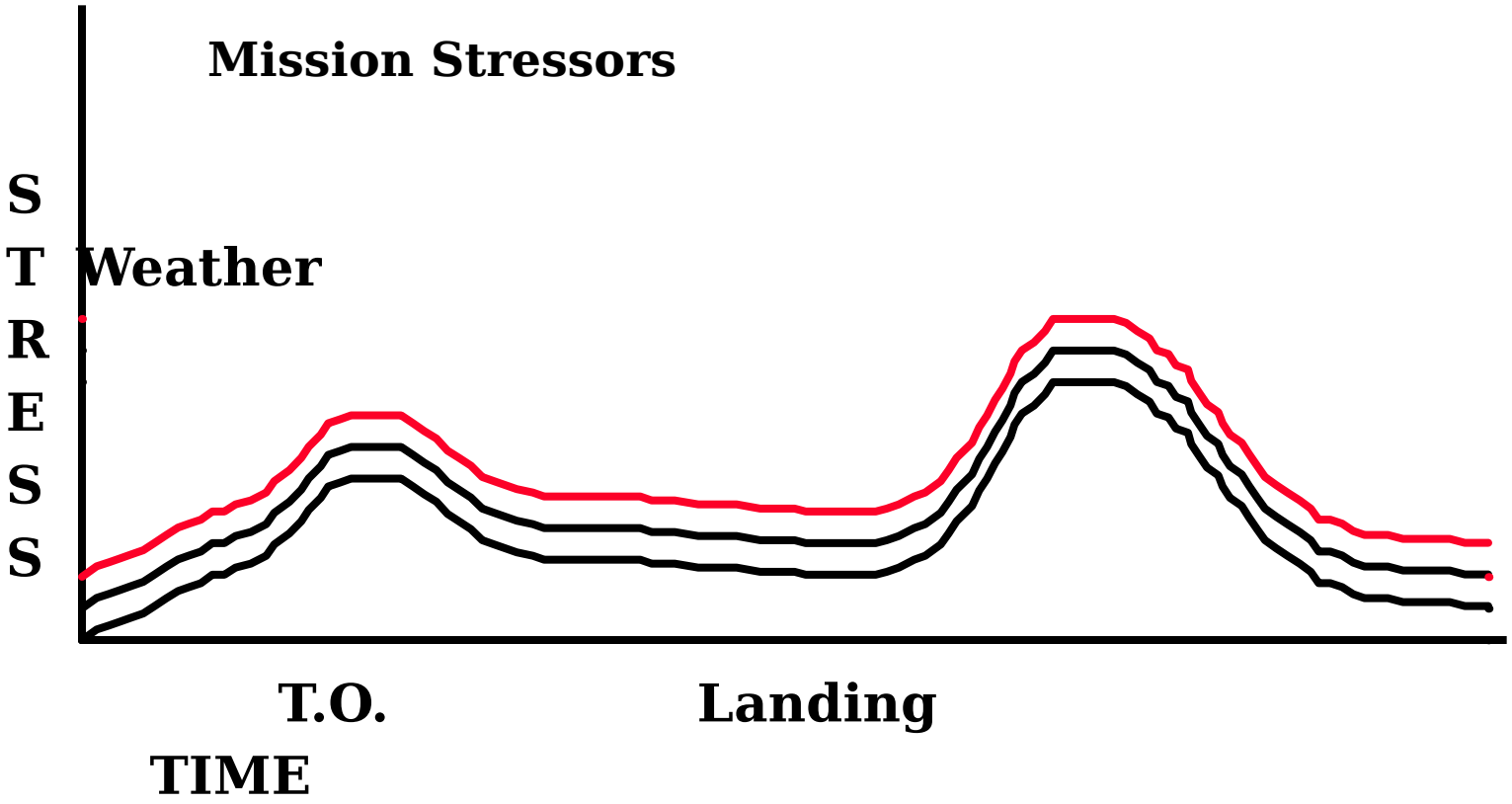

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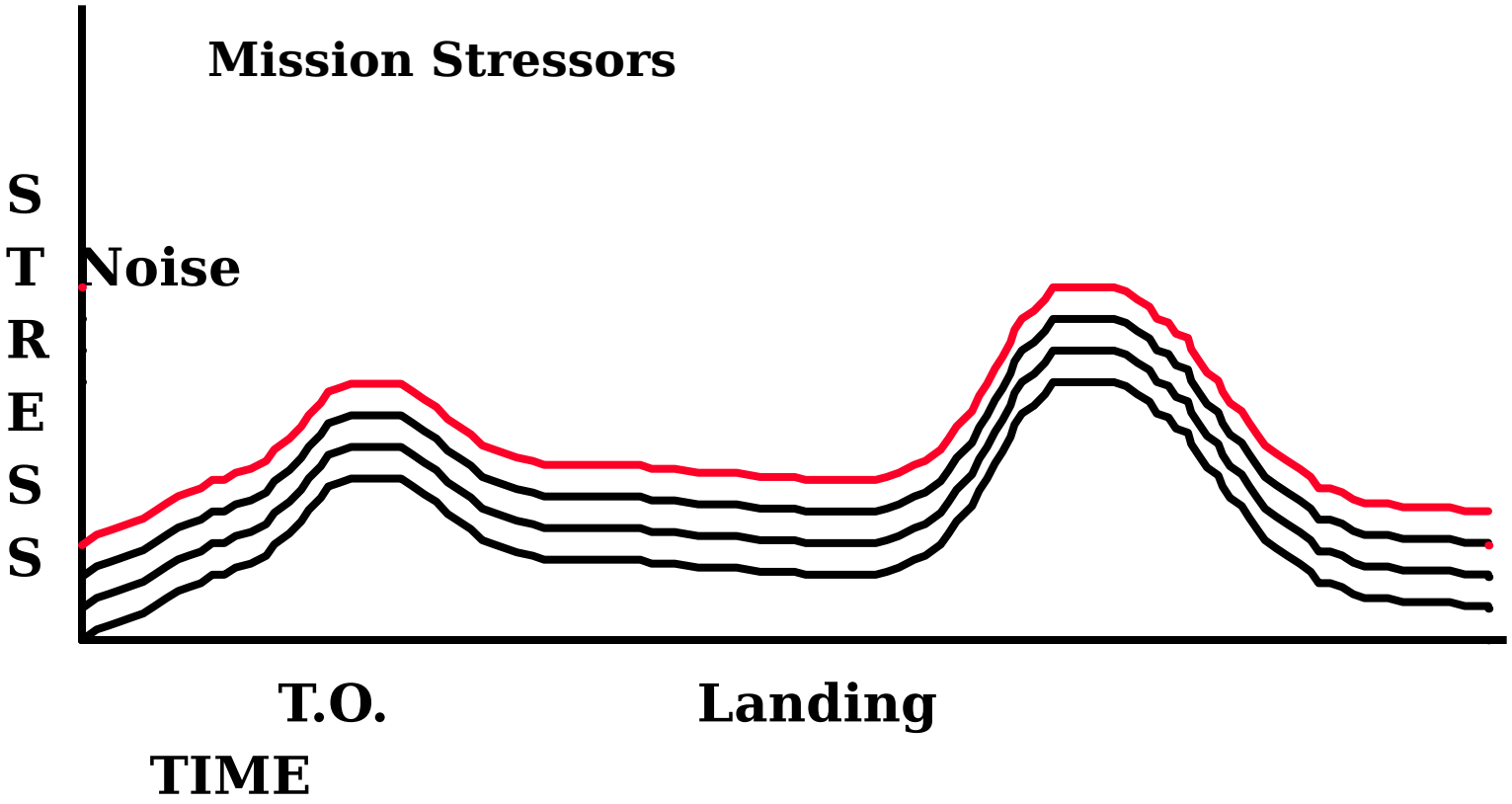

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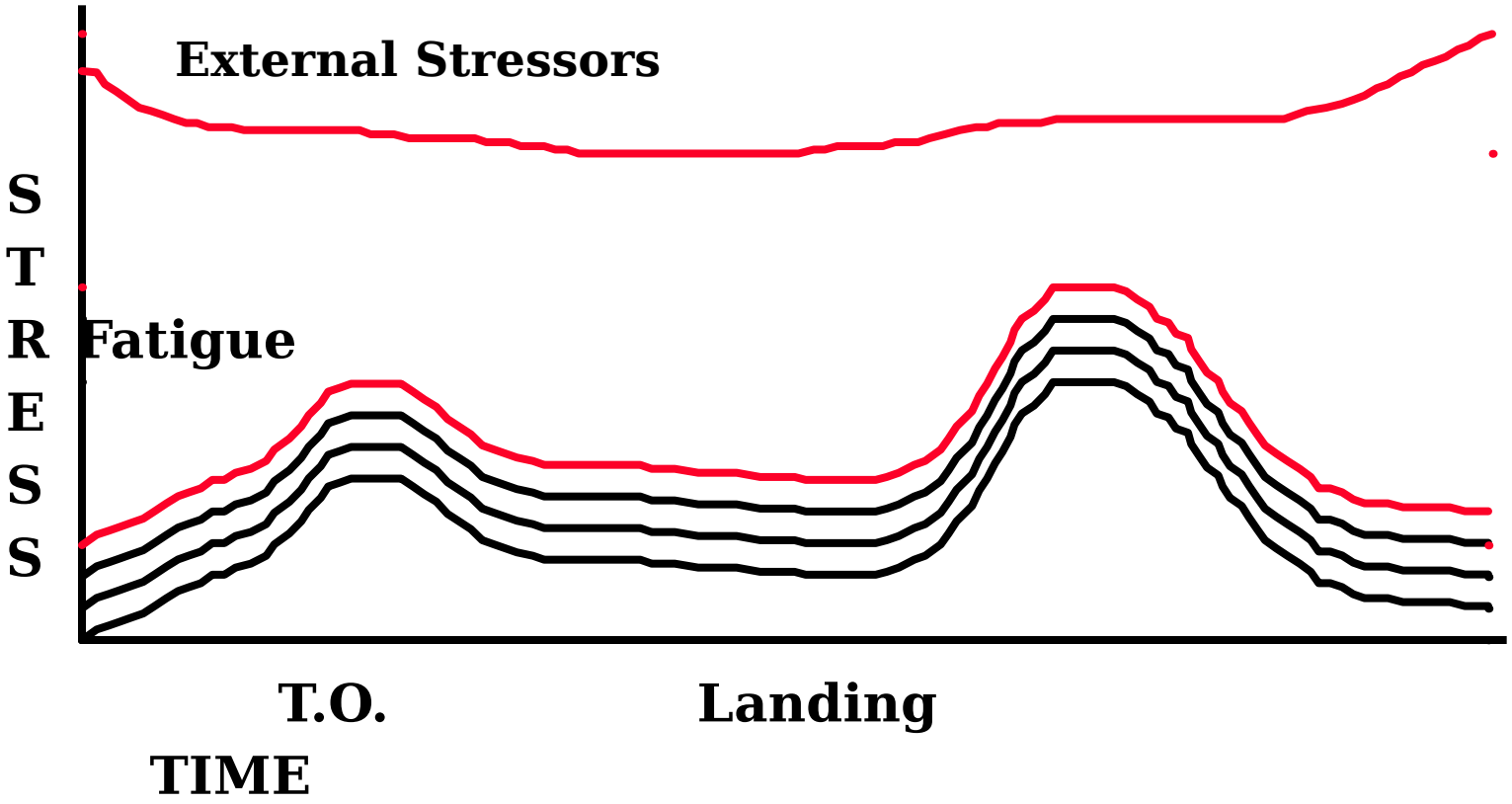

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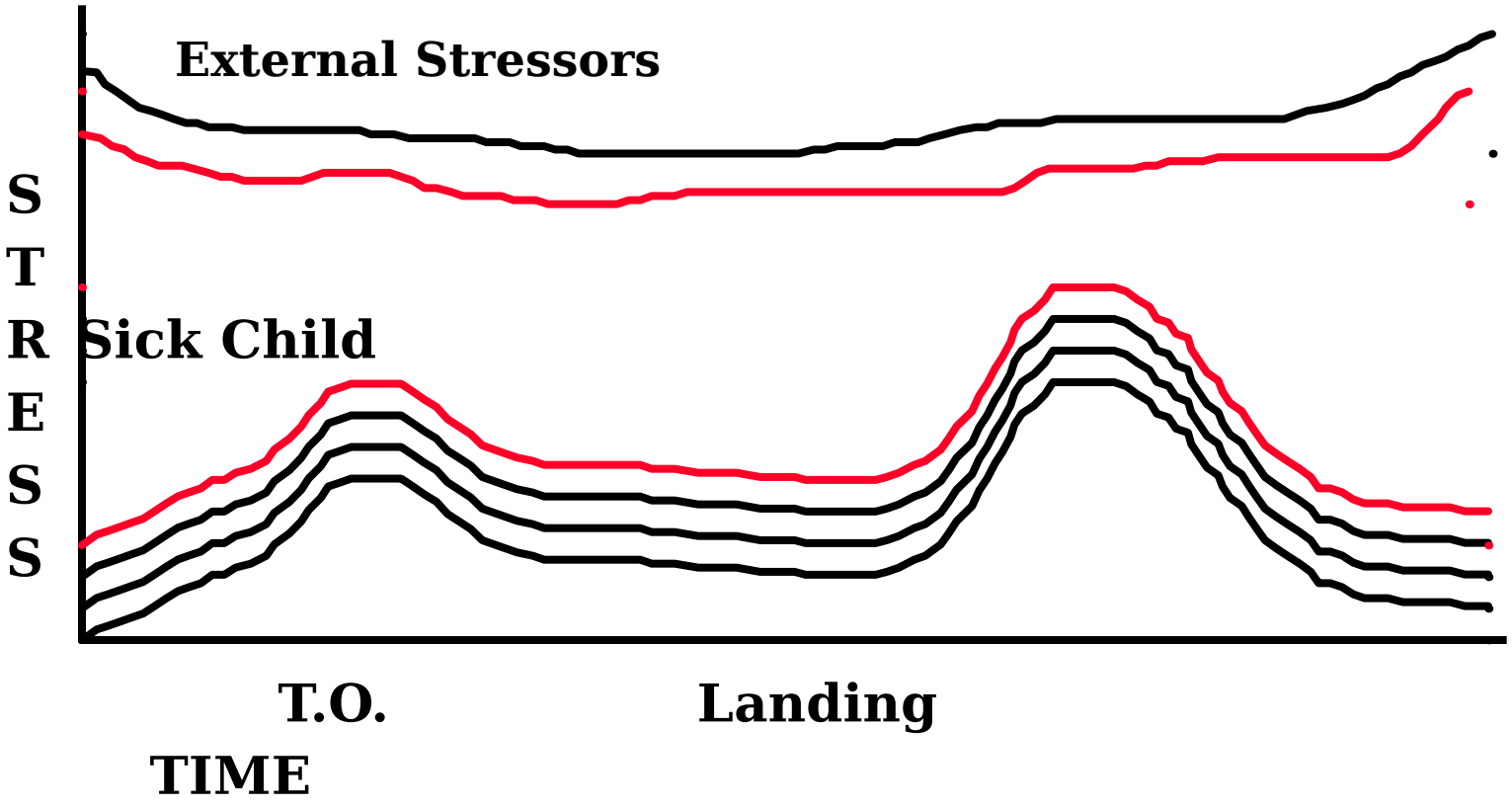

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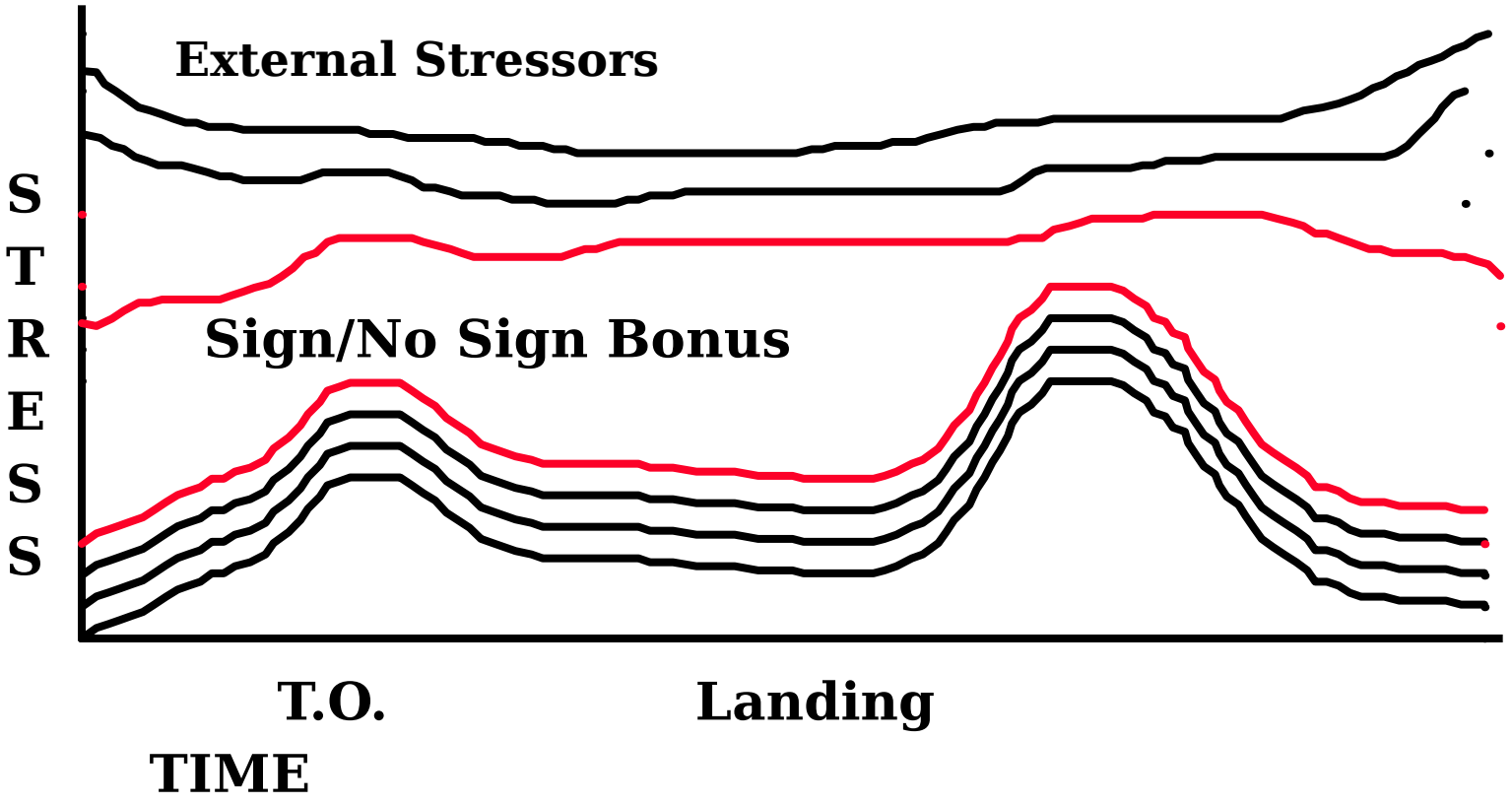
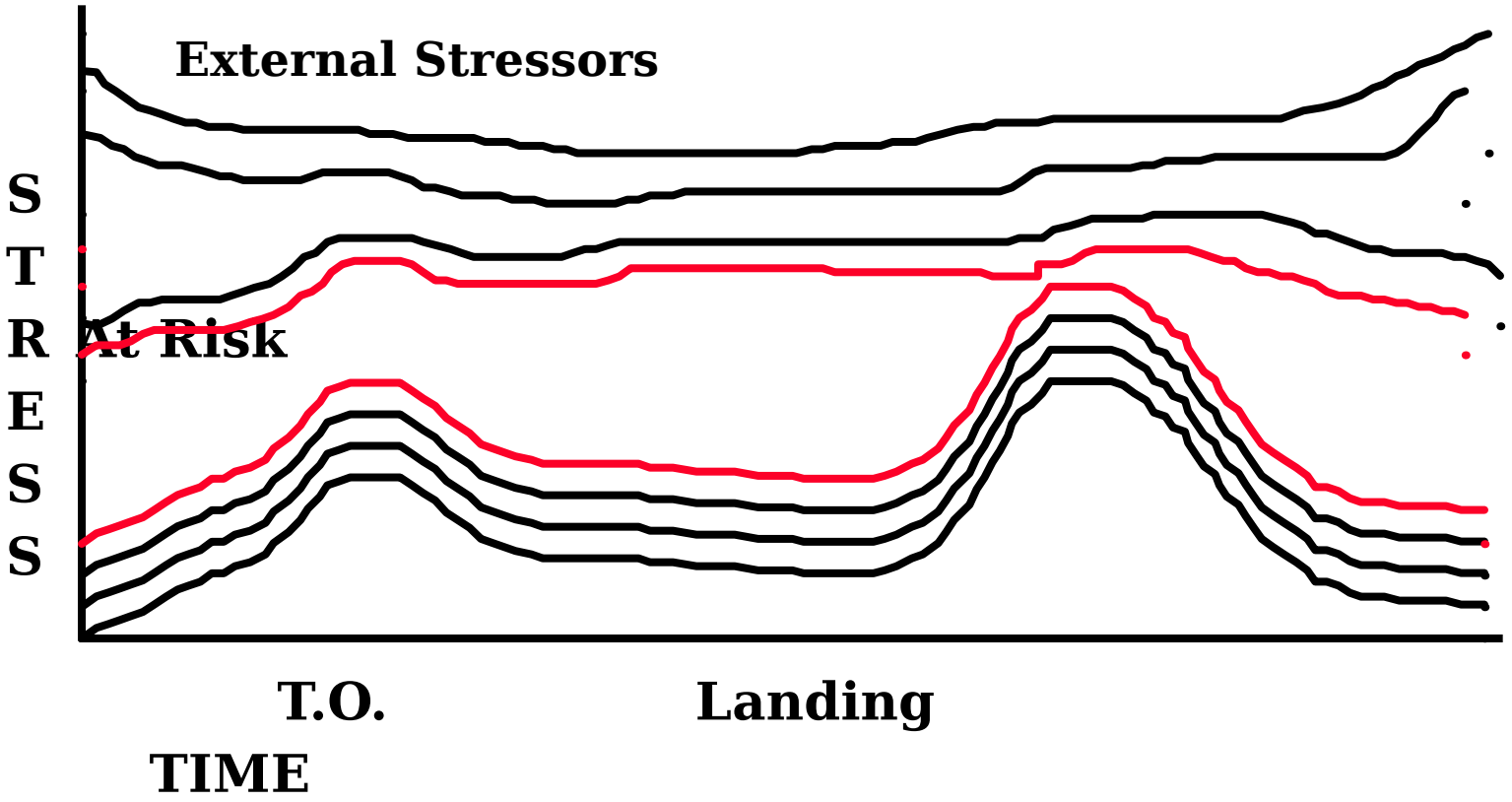
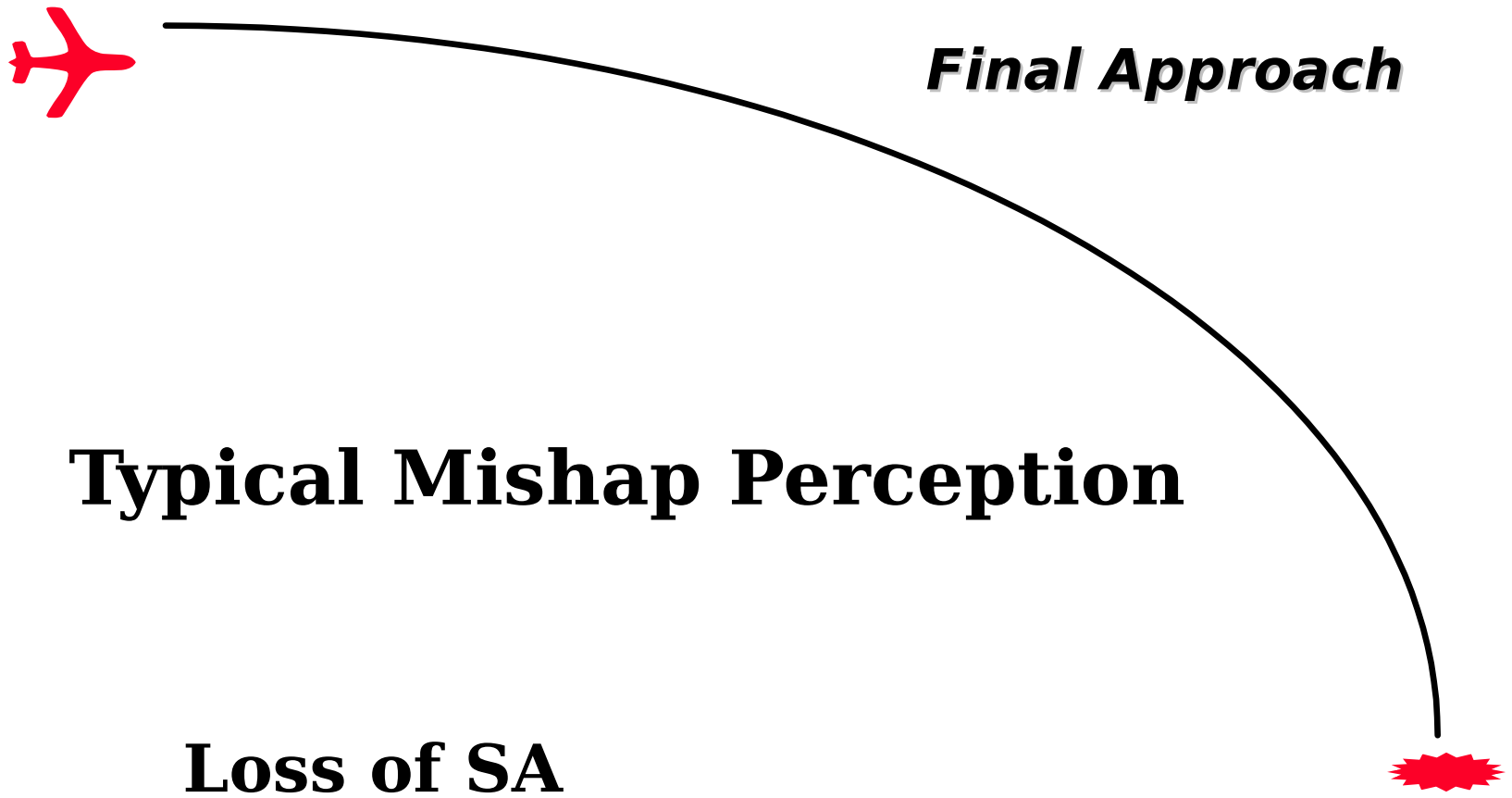

External Stressors
Sign/No Sign Bonus
STRESS
T.O.
Landing
TIME

Stress



"Into the wild blue yonder, eh? Well, stay home with this bunch and you'll discover your wild blue is pretty mild."

A-B-C's



Typical Mishap Perception

Loss of SA

A-B-C's

Mishap Reality

Final Approach

Missed Local Condition Call

Marital Problems

Missed Suspense

24 hour days

Trying to finish Masters Degree

Newborn

Airlines are hiring

Weather

Increased OPs Tempo

SOS

Reprimanded a Crew Member

Anxious

"Whoop Whoop Pull Up"

PANIC

Distraction

Pilot Judgment (ADM/CRM)

Aeronautical Decision Making

Crew Resource Management

Cockpit Resource Management

Pilot Judgment (ADM/CRM)

Prioritized, coordinated, and timely use of all available resources, automation, delegation of tasks, effective communication, and interface with control agencies.

How crews make decisions

Pilot Judgment (ADM/CRM)

Stress, fear, and panic all minimize the range of our cognitions and behaviors, thus limiting our ability to make decisions

“I’M S A F E” Model

Illness	Do I have Symptoms?
Medication	Prescription/OTC drug consumption?
Stress	Job/Family/Financial/etc.. Stress?
Alcohol	Am I violating the “Bottle to Throttle” rule?
Fatigue	Did I sleep well last night? Am I rested?
Eating	Am I hungry or thirsty?

D-E-C-I-D-E Model

D etect Detect a change has happened that needs attention

E stimate Estimate the potential impact of the change on flight

C hoose Choose a safe outcome

I dentify Identify actions and their risks to control the change

D o Do the best option

E valuate Evaluate the impact of the action on the change and the progress of the flight

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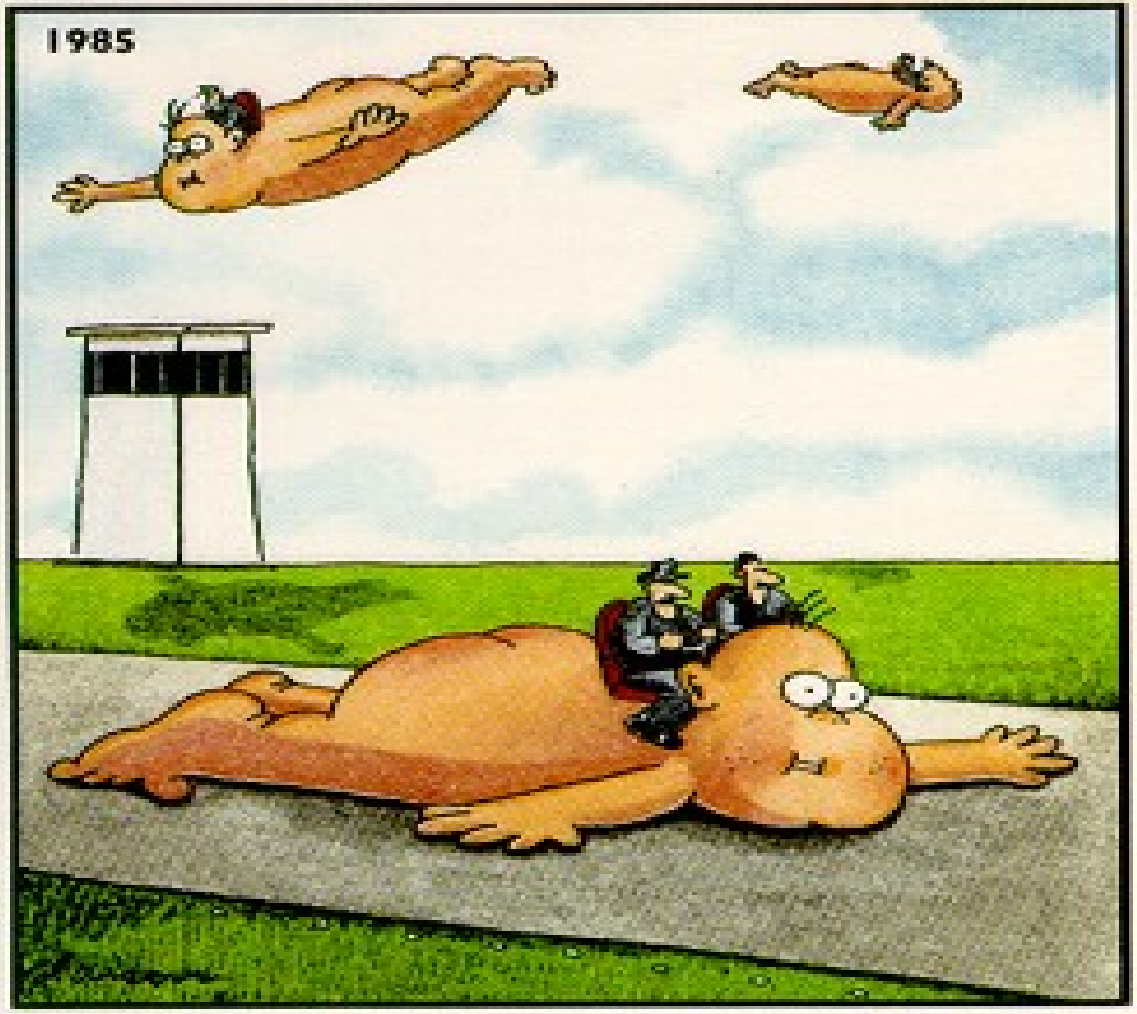

"Fuel ... check. Lights ... check. Oil pressure ... check. We've got clearance. OK, Jack—let's get this baby off the ground."

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